Variadic Templates Exercises

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Variadic function templates

- What is a variadic function template?

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Parameter Packs

- What is meant by the following terms?
  - Template parameter pack
  - Function parameter pack
- Write down a declaration of a variadic function template

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Type deduction

- Given the following declaration of func and definitions of i, d and s

```
template <typename... Args>
void func(Args... args);

int i{42};
double d{0.0};
string s{"text"};
```

- Write down the signature of the functions which would be instantiated by the following calls:

```
func(s);
func(i, d, s);
```

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sizeof... operator

- What is the purpose of the sizeof... operator?
- Write a simple program that demonstrates the use of the sizeof... operator

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Pack expansion

- What is a "pack expansion"?
  - In a context where a list of arguments is expected, if we put the function parameter pack followed by ..., the compiler will replace it with the list of arguments

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Pack processing

- Describe a typical way of processing a function parameter pack

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Pack processing

- Write a variadic function template which processes its function parameter pack
- As each element in the parameter pack is processed, print it out together with the number of elements which remain to be processed

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